

Claims

We claim:

1. A process of making a web or batt comprising polytrimethylene terephthalate staple fibers, comprising (a) providing polytrimethylene terephthalate, (b) melt spinning the melted polytrimethylene terephthalate at a temperature of 245-285°C into filaments, (c) quenching the filaments, (d) drawing the quenched filaments, (e) crimping the drawn filaments using a mechanical crimper at a crimp level of 8-30 crimps per inch (3 - 12 crimps/cm), (f) relaxing the crimped filaments at a temperature of 50-130°C, (g) cutting the relaxed filaments into staple fibers having a length of about 0.2-6 inches (about 0.5 - about 15 cm), (h) garnetting or carding the staple fibers to form a web and (i) optionally cross-lapping the web to form a batt.
2. The process of claim 1 wherein the staple fibers have a denier of 3 to 15.
3. The process of claim 2 wherein the staple fibers have a length of about 0.5 - about 3 inches (about 1.3 - about 7.6 cm).
4. The process of claim 1 wherein the staple fibers have a crimp take-up of 30% or more.
5. The process of claim 3 wherein the staple fibers have a crimp take-up of 30% or more.
6. The process of claim 1 wherein the relaxation is at 105°C or less.
7. The process of claim 1 further comprising bonding the web.
8. The process of claim 7 wherein the bonding is selected from spray bonding, thermal bonding and ultrasonic bonding.
9. The process of claim 8 wherein a low bonding temperature staple fiber is mixed with the staple fibers to enhance bonding.
10. The process of claim 1 wherein fibers selected from the group consisting of cotton, polyethylene terephthalate, nylon, acrylate and polybutylene terephthalate fibers are mixed with the staple fibers.
11. The process of claim 1 wherein the relaxation is carried out by heating the crimped filaments in an unconstrained condition.
12. The process of claim 2 wherein the staple fibers are 3 - 9 denier per filament.
13. The process of claim 1 which is carried out without an anneal step.
14. A process of making a fiberfill product comprising polytrimethylene terephthalate staple fibers, comprising (a) providing polytrimethylene terephthalate, (b) melt spinning the melted polytrimethylene terephthalate at a temperature of 245-285°C into filaments, (c) quenching the filaments, (d) drawing the quenched filaments, (e) crimping the drawn filaments using a mechanical crimper at a crimp

level of 8-30 crimps per inch (3 - 12 crimps/cm), (f) relaxing the crimped filaments at a temperature of 50-130°C, (g) cutting the relaxed filaments into staple fibers having a length of about 0.2-6 inches (about 0.5 – about 15 cm), (h) garnetting or carding the staple fibers to form a web, (i) optionally cross-lapping the web to form a batt, and (j) filling the web or batt into a fiberfill product.

15. The process of claim 14 wherein the staple fibers have a denier of 3 to 15 and a length of about 0.5 - about 3 inches (about 1.3 - about 7.6 cm).

16. The process of claim 14 wherein the cross-lapping is carried out.

17. The process of claim 16 further comprising bonding the web.

18. The process of claim 14 wherein the relaxation is at 105°C or less.

19. The process of claim 14 wherein fibers selected from the group consisting of cotton, polyethylene terephthalate, nylon, acrylate and polybutylene terephthalate fibers are mixed with the staple fibers.

20. A web or batt prepared by the process of claim 1.

21. A fiberfill product prepared by the process of claim 14.

adda²